WHAT IS CLAIMED IS:

1. A process for generating a library of oligonucleotides that are specific for a given set of nucleic acids, comprising:

a) generating random oligonucleotides, wherein said oligonucleotides are of a uniform length comprising a single-stranded, central segment of randomly varied bases and flanking segments of defined sequences on each side of said central segment;

b) hybridizing the random oligonucleotides of step a) with a nucleic acid-containing template of biological or synthetic origin under hybridization conditions that enable the formation of duplexes and using blockers to avoid hybridization of said flanking segments;

c) eliminating non-specific duplexes formed in step b) using conditions that minimize or abrogate mismatches;

d) separating the hybridized oligonucleotides from the duplexes obtained in step c); and

e) amplifying the oligonucleotides obtained in step d).

2. A process as defined in claim 1, further comprising the step of

f) subtracting between two different oligonucleotide libraries (OL1 and OL2) which contain similar sequence motifs.

3. A process as defined in claim 2, wherein said subtracting in step f) consists in:

a) Generating single stranded versions of OL1 and OL2;

b) annealing the OL1 strands with an excess of OL2 strands, under hybridization conditions;

c) partitioning double stranded hybrids (OL1:OL2) and single stranded OL2 from single stranded OL1;

d) amplifying the single stranded OL1 obtained from step c); and

e) repeating steps a) to d) to obtain OL1 oligonucleotides with reduced affinity for OL2.

4. A process as defined in any one of claims 1 to 3, wherein said central segment comprises 10-40 bases and each one of said flanking segments comprises 10-40 bases.

5. A process as defined in claim 4, wherein said central segment comprises 20 bases and each one of said flanking segments comprises 20 bases.

6. A process as defined in any one of claims 1 to 3, wherein the template of step b) contains at least one of genomic or synthetic DNA or RNA, or cDNA.

7. A process as defined in claim 3, wherein said partitioning is carried out using streptavidin and biotin.

8. A library of oligonucleotides produced by the process of any one of claims 1 to 7.

9. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7 in a diagnostic kit.

10. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7 to inhibit gene function.

11. A method of diagnosis comprising use of a library of oligonucleotides produced by the process of any one of claims 1 to 7.

12. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7 wherein said oligonucleotides are bound to a solid support.

13. A use as defined in claim 12, wherein said solid support is at least one of a membrane, glass slide, coated glass slide, printed arrays, microspheres or chromatographic media.

14. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7, wherein said oligonucleotides are hybridized to nucleic acid arrays.